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EXAMINER

WATTS, JENNA A

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/531,885	Applicant(s) BATES ET AL.	
	Examiner JENNA A. WATTS	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 14-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20051128, 20051102</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group 1, claim(s) 1-13, drawn to a method of modifying the viscosity of pureed vegetable matter and the vegetable puree itself.

Group II, claim(s) 14-21, drawn to an apparatus for increasing the viscosity of pureed vegetable matter.

2. The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

3. The common technical feature between Groups I and II can be identified as the sonotrode. However, there is no special technical feature of the claimed invention between the claim groups since the identified common technical feature is found in the prior art, in the patent to Probst (U.S. Patent No. 5,531,157) on Column 3, lines 53-54 and Column 4, lines 60-61). Therefore, the common technical feature is not found to define a contribution over the prior art and in light of this fact, there is a lack of unity of invention and a restriction is proper.

4. During a telephone conversation with Jan Simpson on February 3, 2009, a provisional election was made without traverse to prosecute the invention of Group I,

Art Unit: 1794

Claims 1-13. Affirmation of this election must be made by applicant in replying to this Office action. Claims 14-21 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

6. The election of an invention or species may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

7. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Art Unit: 1794

9. Claim 7 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In particular, the specification does not sufficiently describe how the steps of providing an automatic frequency scanning system in conjunction with said sonotrode, actuating said automatic frequency scanning system to scan the puree and adjusting the ultrasonic wave frequency are performed, and furthermore, it is unclear what specific steps are actually being set forth in order to practice the method of Claim 7 (see instant specification, pages 5 and 6, paragraphs 30-34).

10. There are many factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is "undue." These factors include, but are not limited to the following factors set forth in *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1998) as appropriate. See also MPEP § 2164.01(a) and § 2164.04.

These factors include, but are not limited to:

- (A) The breadth of the claims;
- (B) The nature of the invention;
- (C) The state of the prior art;
- (D) The level of one of ordinary skill;
- (E) The level of predictability in the art;

Art Unit: 1794

- (F) The amount of direction provided by the inventor;
- (G) The existence of working examples; and
- (H) The quantity of experimentation needed to make or use the invention based on the content of the disclosure.

11. For example, the amount of guidance provided by the inventor is not sufficient for one of ordinary skill to make or use the claimed invention, as evidenced by the lack of written description in the specification (see instant specification, pages 5 and 6, paragraphs 30-34). In this light, the amount of experimentation necessary to make or use the invention based on the content of the disclosure would be high and would constitute an undue burden.

12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

14. Regarding Claim 1 specifically, the presence of parentheses in the claim renders the claim indefinite because it is unclear whether the material contained within the parentheses in fact limits the claimed subject matter. Furthermore, the term "relatively" in Claim 1 is a relative term which renders the claim indefinite. The term "relatively" is not defined by the claim, the specification does not provide a standard for ascertaining

Art Unit: 1794

the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. In particular, it is unclear whether the term "relatively" alters the particular ultrasonic frequency or frequency range that is claimed.

15. Regarding Claims 3 and 4 specifically, it is unclear whether the term "arranged to deliver" means that a particular amplitude or energy intensity is claimed or if it is a statement of capability of the claimed sonotrode. Furthermore, regarding Claim 3, the phrase "high-intensity sonotrode" is unclear because it is unclear what parameters are required for a sonotrode to be considered high intensity.

16. Regarding Claim 8, it is unclear whether the term "preferably" is limiting the Brix of the tomato puree to the claimed range, or if the Brix can be another, unclaimed value or range. Furthermore, it is unclear whether the phrase "tomato puree preferably containing between 4 and 36°Brix net total tomato solids" is equating the ideas of Brix with net total tomato solids, and whether Applicant is claiming a Brix range or a range of net total tomato solids.

17. Regarding Claim 13, the term "relatively" is a relative term which renders the claim indefinite. The term "relatively" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. In particular, it is unclear whether the term "relatively" alters the particular ultrasonic frequency or frequency range that is claimed. Furthermore, it is unclear to what a puree with an increased viscosity is being compared.

Art Unit: 1794

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

20. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 1794

21. Claims 1-3 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wagner et al. (U.S. Patent No. 3,892,877) in view of Probst (U.S. Patent No. 5,531,157).

22. Regarding Claims 1 and 2, Wagner teaches a method of increasing, thus modifying, the consistency of tomato purees (Column 1, lines 12-13 and Column 5, lines 65-68). In the context of tomato products, Chiang et al. (U.S. Patent No. 5,436,022) defines the term "consistency" as the apparent viscosity of the product (Column 1, lines 30-35). Thus, it is understood that consistency and viscosity are interchangeable.

Wagner further teaches that it is recognized that consistency/viscosity is an important attribute of tomato products such as pastes, sauces and ketchups, and in such products, higher consistency/viscosity signifies better quality (Column 1, lines 30-35).

23. Wagner further teaches the use of homogenization, whereby the fruit cells suspended in the juice or concentrate are deliberately damaged - ruptured, shredded, sheared or otherwise mechanically injured - with the end result that the material is increased in consistency (Column 5, lines 5-8). Wagner further teaches that various types of equipment can be used (Column 5, lines 10-11), including equipment that uses sound waves (Column 5, lines 24-25).

24. Wagner does not teach using low-frequency ultrasonic energy, having a frequency in the range from about 16 to 100 kHz, and a sonotrode, in a manner such that cavitation of a water fraction in said puree is induced, and the cellular structure and cell wall material are degraded, thereby to increase the viscosity of the puree.

Art Unit: 1794

25. Regarding Claims 1 and 2, Probst teaches the use of vibrations in the frequency of 20 kHz (Column 2, line 45), thereby constituting Applicant's definition of low-frequency ultrasonic energy, and a sonotrode (Column 4, lines 59-60), in order to homogenize liquid substances of low or medium viscosity, such as fruit juices (Column 1, lines 10-11 and line 55). Probst further teaches that the process is carried out via the mechanical action of rupturing the cell membrane. This process is caused by cavitation phenomena in the fluid/water induced by vibrations, which cause a rapid and effective subdivision of particles into parts with reduced dimensions, thus ensuring that the liquid is sufficiently homogenized (Column 2, lines 60-63 and Column 4, lines 22-23). Probst further teaches that during the process, the sonotrode is in contact with the fluid to be treated (Column 5, lines 21-22). Probst teaches that the method can be used on liquids of medium viscosity (Column 1, lines 10-11) and lists fruit juices as a possible material (Column 1, line 55). Since tomatoes are also considered fruit, and tomato purees could be considered of medium viscosity, it would be understood that the above mentioned method would hold for tomato juices and purees as well, absent any evidence to the contrary.

26. Because Wagner teaches that homogenization leads to increased viscosity of the puree via a deliberate degrading/rupturing of fruit cells and Probst teaches the use of ultrasonic waves and the sonotrode for homogenizing liquids of medium viscosity, whereby cavitation induced vibrations cause degrading/rupturing of the cell membrane, it follows from Wagner that the use of the ultrasonic waves and the sonotrode would, in effect, increase the viscosity of the liquid being homogenized.

Art Unit: 1794

27. Therefore, it would have been obvious for one of ordinary skill in the tomato/ketchup art, at the time of the invention, for example to use a known method of low-frequency ultrasonic energy (20 kHz) and a sonotrode inserted directly in the fluid, because it has been found that such a method increases the viscosity of medium viscosity fluids due to the cavitation-induced rupturing of cell membranes. One of ordinary skill in the art would have been motivated to use ultrasonic waves and a sonotrode to increase the viscosity of a vegetable puree, since viscosity is known to be an important attribute in the food industry and contributes to an increase in apparent quality of a food product such as ketchup.

28. Regarding Claim 3, since Wagner in view of Probst teach using a sonotrode with low-frequency ultrasonic waves, at a frequency of 20 kHz, inserted directly into a vegetable puree, and thus into its liquid component, (See Wagner, Column 5, lines 65-66 and Probst, Column 2, line 45 and Column 5, lines 21-22), and Applicant discloses that supplying low frequency ultrasonic waves (as opposed to high frequency ultrasonic waves) directly to the liquid component of the puree would produce energy intensities of between 1 and 1000 W/cm³ (see instant specification, Page 4, Paragraph 25), it would be expected that the sonotrode as taught by Wagner in view of Probst would be arranged to deliver an energy intensity equal to or greater than 1 W/cm³, absent any evidence to the contrary. Reference is made to the 112 2nd rejection as set forth above. Since the phrase "arranged to deliver" is open to interpretation, the teaching from Wagner in view of Probst reads on the claim because the sonotrode would have the

Art Unit: 1794

capacity to deliver such an energy intensity based on Applicant's requirements to achieve such an energy intensity, absent any evidence to the contrary.

29. Regarding Claim 11, Wagner does not teach that the puree is introduced to the sonotrode under an overpressure between 0.1 Bar and 10 Bar.

30. Probst teaches that the pressure at which the liquid was maintained in order to suppress the erosion phenomena, introduced by cavitation in parts of the device for carrying out the process, was only 4 Bar (Column 3, lines 40-44). Applicant's claim of an overpressure of between 0.1 and 10 Bar is understood to indicate gauge pressure. Thus, in converting overpressure to absolute pressure, an overpressure in the range from 0.1 to 10 Bar equals an absolute pressure in the range of 1.1 to 11 Bar. Either way, Probst's teaching of 4 Bar meets the limitations of Claim 11.

31. It would have been obvious to one of ordinary skill in the art at the time of the invention for a pressure in the range of 1.1 to 11 Bar to be used, because Probst teaches that such a pressure range suppresses the erosion phenomena that is caused by cavitation in parts of the device. One of ordinary skill in the art would have been motivated by production and financial reasons to use such a pressure range when using a sonotrode, in order to prevent erosion of the device, thereby ensuring that the equipment is maintained in good working order for as long as possible.

Art Unit: 1794

32. Claims 4, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wagner et al. (U.S. Patent No. 3,892,877) in view of Probst (U.S. Patent No. 5,531,157), and in further view of Derks et. al. (U.S. Patent No. 4,460,619).

33. Regarding Claims 4, 6 and 7, Wagner in view of Probst are relied upon as above for the rejection of Claim 1.

34. Wagner in view of Probst do not teach that the sonotrode is arranged to deliver ultrasound waves having an amplitude of between 1 and 500 micron.

35. Derks teaches using a sonotrode to transport and deposit viscous material (Column 1, lines 8-9) and further teaches that ultrasonic vibrations are understood herein to mean vibrations above the audible frequency range, in a frequency range of about 16 to 100 kHz, and having an amplitude of from 1 to 50 micron or micrometer (Column 1, lines 50-55), Derks further teaches that the upper limit of the amplitude is determined in practice by the acceptable material stress to which the sonotrode may be subjected and the lower limit is determined by a necessary practical minimum (Column 1, lines 61-64). Regarding Claim 4, reference is made to the 112 2nd rejection as set forth above and it has been determined that the phrase "arranged to deliver" is open to interpretation. Therefore, Derks' teaching of a sonotrode that uses an amplitude from 1 to 50 micron or micrometer reads on the claim because it is within Applicant's claimed range.

36. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention for the process of using a sonotrode as taught by Wagner in view of Probst to further comprise using an amplitude in the range of 1 to 50 micron because

Art Unit: 1794

such a range is known to be used with a sonotrode and results in acceptable material stress being exerted on the sonotrode, and is further used in the range of 16 kHz to about 100 kHz, which is within the range used by Probst. One of ordinary skill in the art would have been motivated to use such a range in order to ensure that while the sonotrode is in use, an acceptable level of material stress is being exerted on the sonotrode, in order to prevent any degradation of the sonotrode over time.

37. Regarding Claim 6, Wagner in view of Probst and in further view of Derks teach the use of a focused sonotrode because Wagner in view of Probst teach that the ultrasonic waves emitted by the sonotrode are focused (See Probst, Column 4, lines 60-61), thus the sonotrode is deemed a focused sonotrode.

38. Regarding Claim 7, Wagner in view of Probst teach using a sonotrode inserted directly into a vegetable puree, using a frequency of 20 kHz (See Wagner, Column 5, lines 65-66 and Probst, Column 2, line 45 and Column 5, lines 21-22). Thus, it is understood that the particular frequency was identified and chosen such that it will induce cavitation in the particular liquid, thus ensuring the liquid is sufficiently homogenized.

39. Wagner in view of Probst do not specifically teach further providing an automatic frequency scanning system in conjunction with said sonotrode, actuating said automatic frequency scanning system to scan said puree for an ultrasonic resonance frequency, being the frequency at which said puree will support a standing wave of ultrasonic

Art Unit: 1794

energy, and adjusting the ultrasonic wave frequency delivered by the sonotrode to the puree to match said ultrasonic resonance frequency.

40. Derks teaches using a sonotrode to transport and deposit viscous material (Column 1, lines 8-9) and further teaches that ultrasonic vibrations are understood herein to mean vibrations above the audible frequency range, in a frequency range of about 16 to 100 kHz, and having an amplitude of from 1 micrometer to 50 micrometer (Column 1, lines 50-55). Derks further teaches that the said extreme values of frequency and amplitude are dependent upon the shape of the sonotrode and upon the viscosity of the material to be processed (Column 1, lines 66-68 and Column 2, line 1). Therefore, it is understood that the frequency of the sound waves may be altered depending on the viscosity of the material to be processed.

41. It has been found that "broadly providing an automatic or mechanical means to replace a manual activity which accomplished the same result is not sufficient to distinguish over the prior art." See *In re Venner*, 262 F.2d 91, 95, 120 USPQ 193, 194 (CCPA 1958) and MPEP 2144.04 III. In the instant case, Probst teaches using a frequency with the sonotrode that is appropriate for the liquid to be homogenized, and Derks teaches that the frequency of the sonotrode to be used would depend on the viscosity of the material to be processed, therefore the prior art teaches scanning/determining the ultrasonic resonance frequency of the puree, and adjusting the frequency delivered by the sonotrode. The automation of such an activity would, therefore, accomplish the same result as the previously mentioned manual activity, and would have been obvious to one of ordinary skill in the art at the time of the invention.

42. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wagner et al. (U.S. Patent No. 3,892,877) in view of Probst (U.S. Patent No. 5,531,157), and Derks et. al. (U.S. Patent No. 4,460,619), and in further view of Abramov et al. (U.S. Patent No. 5,994,818).

43. Wagner in view of Probst and in further view of Derks is relied upon as above for the rejection of Claim 4.

44. Wagner in view of Probst and in further view of Derks do not teach that the sonotrode is a radial sonotrode.

45. Abramov teaches a sonotrode (Column 2, lines 35-37) used for transferring or transmitting ultrasonic energy into a fluid or pasty medium (Column 1, lines 8-9), wherein the ultrasonication energy is "sonically" transferable in a radial direction to the medium (Column 6, lines 5-8, and Column 11, lines 23-25), thus the sonotrode is deemed a radial sonotrode. Abramov further teaches that the sonotrode can be employed for various processes, including mixing multiple fluids or pasty components of food stuffs, for emulsification and the like (Column 10, lines 10-12). Abramov teaches that the sonotrode produces a desirable high transmission operating effectiveness and has an operating effectiveness which is close to optimal operating effectiveness of the device (Column 3, lines 57-60 and Column 4, 1-2).

46. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, for the sonotrode as taught by Wagner in view of Probst and Derks to have been a radial sonotrode because Abramov teaches that such a radial

Art Unit: 1794

sonotrode has an operating effectiveness which is close to optimal. One of ordinary skill in the art would have been motivated to use a radial sonotrode in order to ensure that the sonotrode is working at optimal conditions, in order to maximize production and minimize costs associated with ineffective systems.

47. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wagner et al. (U.S. Patent No. 3,892,877) in view of Probst (U.S. Patent No. 5,531,157) and in further view of Chiang et al (U.S. Patent No. 5,436,022).

48. Wagner in view of Probst is relied upon as above for the rejection of Claim 1.

49. Regarding Claims 8 and 9, Wagner in view of Probst teach vegetable puree that is at least partly made up of tomato puree (see Wagner, Column 5, lines 65-66) but do not teach that the tomato puree preferably contains between 4°Brix and 36 °Brix net total tomato solids, and further in the range of 12°Brix to 36°Brix. Chiang teaches a tomato puree having 12°Brix (Column 5, line 20 and Column 6, lines 1-2), wherein the resulting puree was found to have a sweeter, more fruity, and less sour taste than previously prepared tomato puree, and further teaches that the puree can be used for the production of tomato-based products such as tomato sauce, ketchup, pizza sauce, and the like (Column 5, lines 20-23 and 27-28).

50. Chiang further teaches that the tomato products produced by this invention have a consistency/viscosity suitable for commercial purposes (Column 3, lines 15-16). As mentioned above, Chiang states that the term “consistency” refers to the apparent viscosity of the product (Column 1, lines 30-35). Thus, it is understood that consistency

Art Unit: 1794

and viscosity are interchangeable. Reference is made to the 112 2nd rejection as set forth above and it has been determined that the phrase "4°Brix and 36 °Brix net total tomato solids " is open to interpretation. Thus, Chiang's teaching of a tomato puree with a 12°Brix reads on the claim limitation because it falls within the Brix range claimed by Applicant.

51. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention for the tomato puree as taught by Wagner in view of Probst to contain 12°Brix because Chiang teaches that tomato puree having a 12°Brix was found to be sweeter, more fruity, and less sour taste than previously prepared tomato puree and has a suitable viscosity for use in various tomato-based products, such as ketchup. One of ordinary skill in the art would have been motivated to use a puree with 12°Brix that is appealing to customers and has a wide range of applicability in various tomato-based products.

52. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wagner et al. (U.S. Patent No. 3,892,877) in view of Probst (U.S. Patent No. 5,531,157) and Chiang et al (U.S. Patent No. 5,436,022), and in further view of Gallaher et al. (U.S. Patent No. 5,965,190).

53. Wagner in view of Probst and Chiang are relied upon as above for the rejection of Claim 8.

54. Wagner in view of Probst and Chiang teach that the fluid to be processed with ultrasonic energy is kept within predetermined temperature limits (see Probst, Column

Art Unit: 1794

4, lines 3-5), and Wagner in view of Probst and Chiang further teach the production of tomato based products, such as ketchup, from a tomato puree/slurry that is homogenized (see Chiang, Column 5, line 15 and 27-28 and see Wagner, Column 1, lines 11-12 and Column 5, lines 4-5 and 66-67), but do not specifically teach that the vegetable puree containing tomato is heated to a temperature in the range 65 to 80°C prior to the application of the ultrasonic energy.

55. Gallaher teaches a method of processing products containing tomato pastes, purees, and sauces (Column 1, lines 5-7), wherein the tomato slurry enters the homogenizer at a preferred temperature range between 70 and 80°C, this range being preferred for tomato slurries intended for use in products such as tomato ketchups (Column 8, lines 60-64).

56. It would have been obvious to one of ordinary skill in the art at the time of the invention, for the method of applying ultrasonic waves to a tomato puree as taught by Wagner in view of Probst and Chiang, to have included heating the tomato puree to a range between 70 and 80°C because such a temperature range has been found to be suitable for tomato slurries undergoing homogenization, and intended for use in products such as tomato ketchup. One of ordinary skill would have been motivated to use a temperature range between 70 and 80°C in order to ensure that the resulting homogenized product is suitable for use in the desired application.

Art Unit: 1794

57. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wagner et al. (U.S. Patent No. 3,892,877) in view of Probst (U.S. Patent No. 5,531,157) and in further view of Gallaher et al. (U.S. Patent No. 5,965,190).

58. Wagner in view of Probst are relied upon as above for the rejection of Claim 1.

59. Regarding Claim 12, Wagner in view of Probst teach that the puree is processed by ultrasonic treatment (see rejection of Claim 1 above), but do not teach that the puree is processed to have up to 25% by mass of sugar, in order to assist in stabilizing the viscosity of the puree post ultrasonic treatment.

60. Gallaher teaches a method of processing products containing tomato pastes, purees, and sauces (Column 1, lines 5-7), wherein corn syrup in the amount of 4% by weight may be added to ketchup after homogenization in order to increase viscosity and may reduce the weeping and serum separation in the products (Column 9, lines 35-39), thereby assisting in stabilizing the viscosity of the puree post treatment. Gallaher further teaches a tomato ketchup formula where the sugar and other sweeteners are equated in the formula (Column 9, Table 1), and since corn syrup is a type of sweetener, the addition of corn syrup in the amount of 4% by weight is deemed to meet the claimed limitation of up to 25% by mass of sugar added.

61. It would have been obvious to one of ordinary skill in the art at the time of the invention for the tomato puree as taught by Wagner in view of Probst to have contained 4% sugar/sweetener because Gallaher teaches that such an addition helps to increase viscosity and may reduce the weeping and serum separation in the products. One of ordinary skill would have been motivated to use 4% sugar by mass in order to ensure

Art Unit: 1794

that the finished product is of high quality and meets consumer's standards for tomato based products.

Claim Rejections - 35 USC § 102

62. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

63. Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Chiang et al. (U.S. Patent No. 5,436,022).

64. Chiang teaches a vegetable puree (Column 6, lines 1-2) and since there are no claimed parameters for producing such a puree, it is determined that Chiang's teaching of a vegetable puree meets the limitations of the claim. Furthermore, the introduction of specific processing parameters to a product claim would not materially affect the patentability of such a product claim.

Conclusion

65. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNA A. WATTS whose telephone number is (571) 270-7368. The examiner can normally be reached on Monday-Friday 8am-4:30pm.

Art Unit: 1794

66. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks can be reached on (571) 272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

67. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. A. W./
J. Watts
Examiner, Art Unit 1794
February 6, 2009

/KEITH D. HENDRICKS/
Supervisory Patent Examiner, Art Unit 1794